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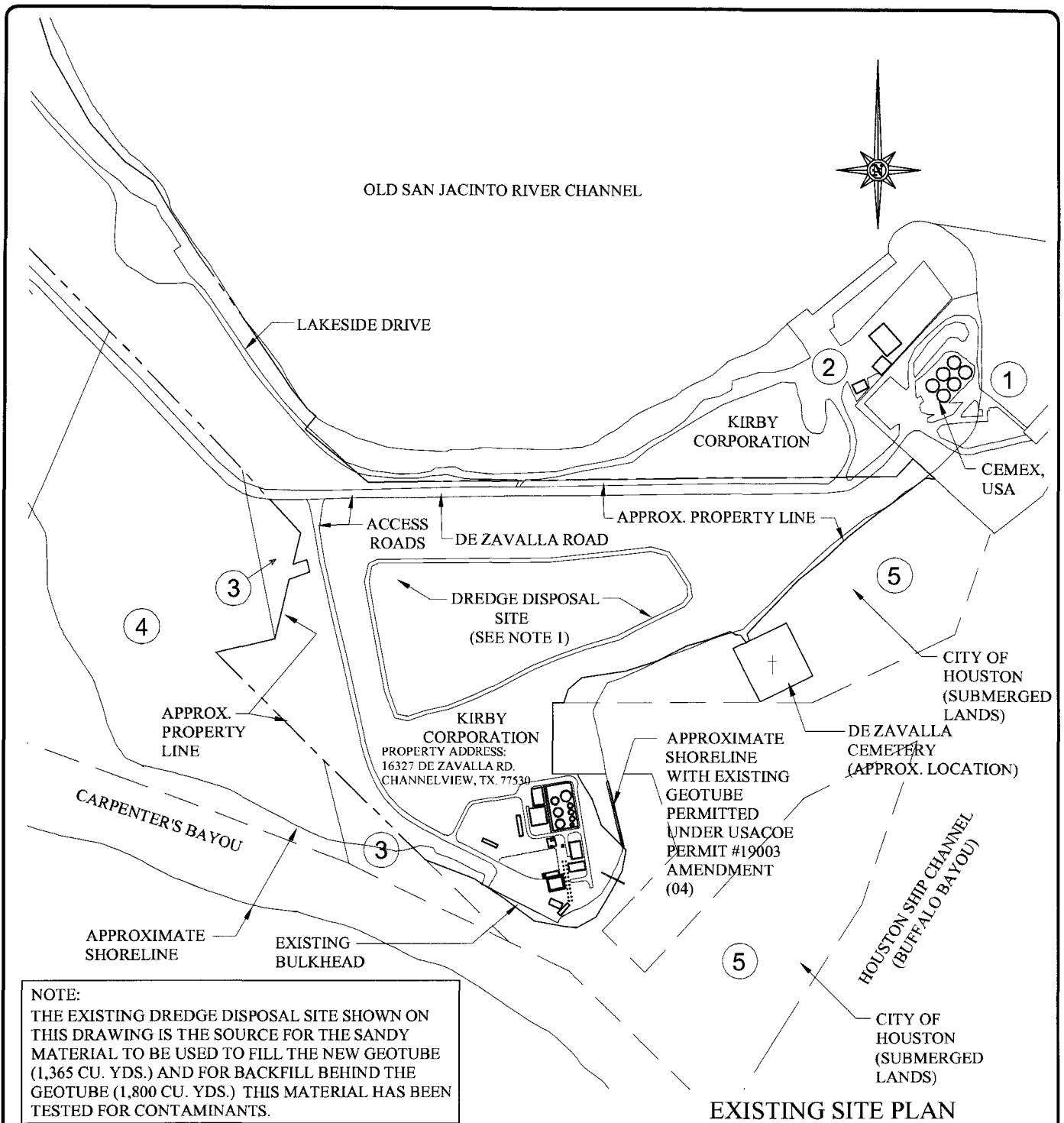
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ADJACENT PROPERTY OWNERS:

- ① CEMEX, USA
- ② KIRBY CORPORATION
- ③ EQUSTAR CHEMICALS, LP
- ④ HOUSTON FLEET, LLC
- ⑤ CITY OF HOUSTON



Texas Gulf Engineering, LLC

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LAKESIDE, TEXAS 77566
HOUSTON OFFICE: 1755 FEDERAL ROAD
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TEL: (713) 355-1100 FAX: (713) 355-1125

KIRBY INLAND MARINE, LP
55 WAUGH DRIVE, SUITE 1000
HOUSTON, TEXAS 77007

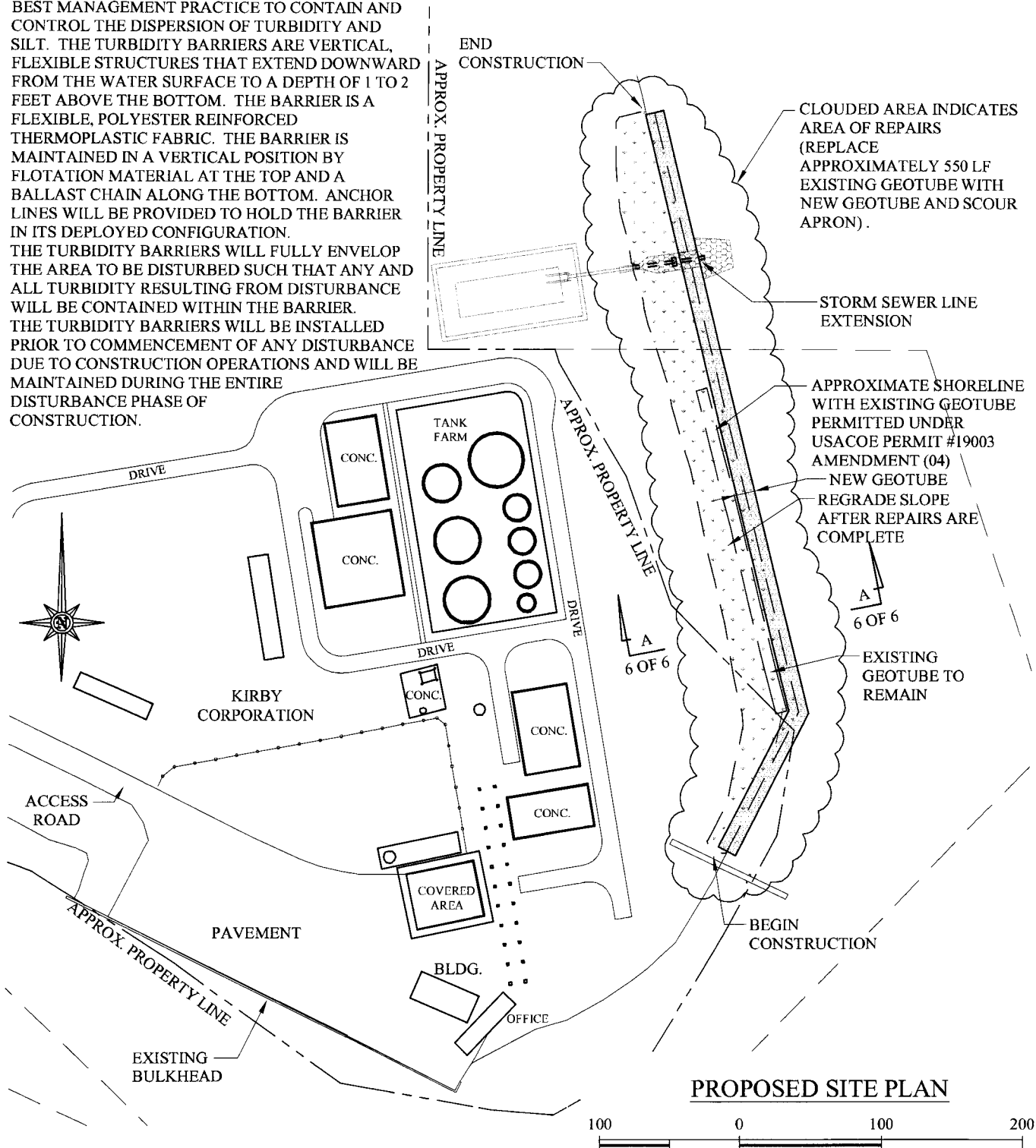
PURPOSE:

DEZAVALLA FLEET SHORELINE REPAIRS
AT CARPENTER'S BAYOU & BUFFALO
BAYOU IN CHANNELVIEW, HARRIS
COUNTY, TEXAS

DATE: SEPTEMBER 6, 2012 SHEET: 2 OF 6

SWG-2008-00941

TURBIDITY BARRIERS WILL BE DEPLOYED AS A BEST MANAGEMENT PRACTICE TO CONTAIN AND CONTROL THE DISPERSION OF TURBIDITY AND SILT. THE TURBIDITY BARRIERS ARE VERTICAL, FLEXIBLE STRUCTURES THAT EXTEND DOWNWARD FROM THE WATER SURFACE TO A DEPTH OF 1 TO 2 FEET ABOVE THE BOTTOM. THE BARRIER IS A FLEXIBLE, POLYESTER REINFORCED THERMOPLASTIC FABRIC. THE BARRIER IS MAINTAINED IN A VERTICAL POSITION BY FLotation MATERIAL AT THE TOP AND A BALLAST CHAIN ALONG THE BOTTOM. ANCHOR LINES WILL BE PROVIDED TO HOLD THE BARRIER IN ITS DEPLOYED CONFIGURATION. THE TURBIDITY BARRIERS WILL FULLY ENVELOP THE AREA TO BE DISTURBED SUCH THAT ANY AND ALL TURBIDITY RESULTING FROM DISTURBANCE WILL BE CONTAINED WITHIN THE BARRIER. THE TURBIDITY BARRIERS WILL BE INSTALLED PRIOR TO COMMENCEMENT OF ANY DISTURBANCE DUE TO CONSTRUCTION OPERATIONS AND WILL BE MAINTAINED DURING THE ENTIRE DISTURBANCE PHASE OF CONSTRUCTION.



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LAKE JACKSON OFFICE 122 WEST WAY, SUITE 306 LAKE JACKSON, TEXAS 77566 (979)345-3400 Fax: (979)255-3404	HOUSTON OFFICE 1755 FEDERAL ROAD HOUSTON, TEXAS 77055 Tel: (713)455-1110 Fax: (713)455-1123
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PURPOSE:

**DEZAVALA FLEET SHORELINE REPAIRS
AT CARPENTER'S BAYOU & BUFFALO
BAYOU IN CHANNELVIEW, HARRIS
COUNTY, TEXAS**

DATE: SEPTEMBER 6, 2012 SHEET: 3 OF 6

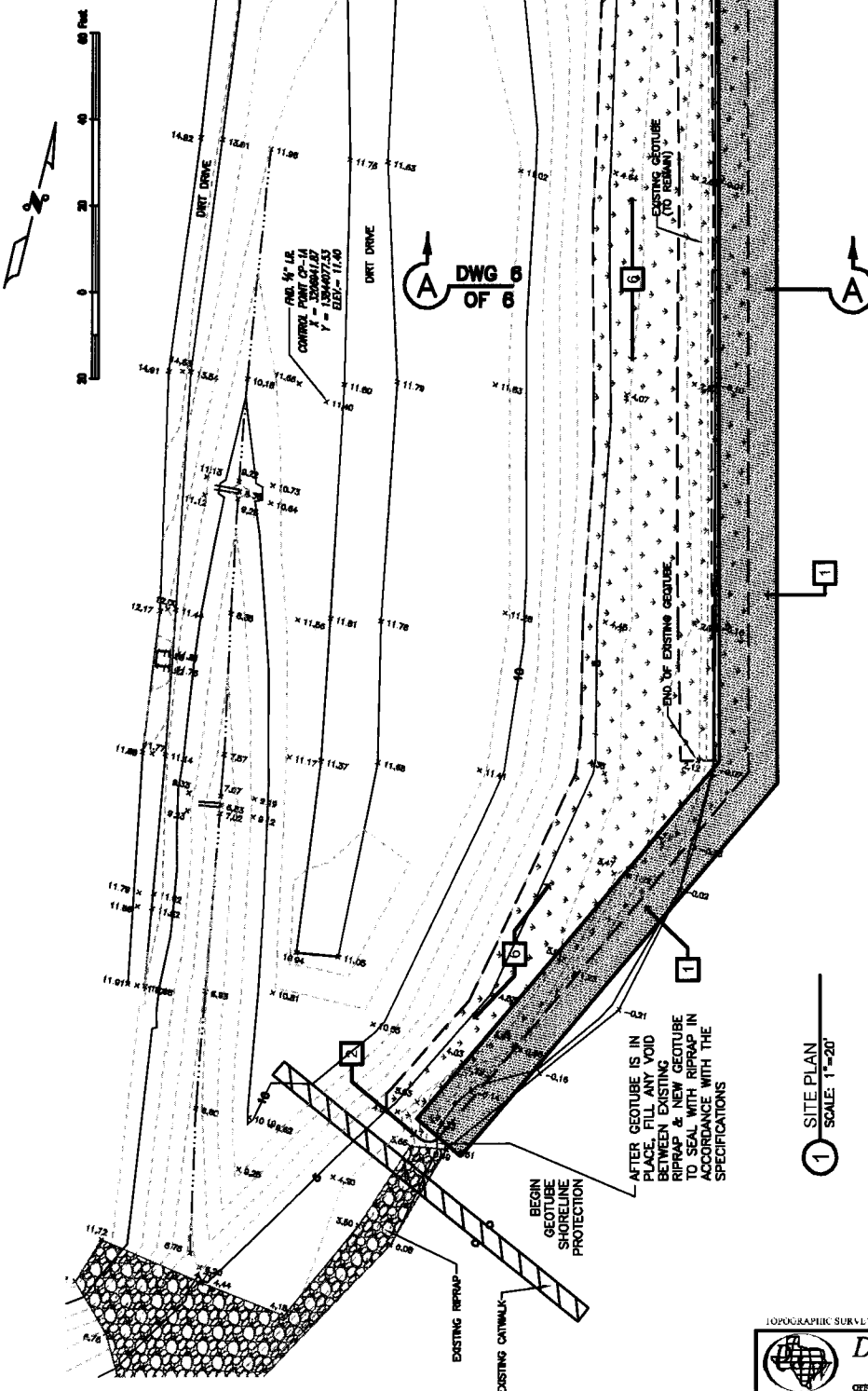
SW6-2008-00941

MATCHLINE SEE DWG. 5 OF 6

MATCHLINE SEE DWG. 5 OF 6

CONSTRUCTION NOTES

1. FURNISH AND INSTALL: NEW 20' WIDE X 550' LONG, 34" CIRCUMFERENCE, CONTINUOUS GT1000M GEOTUBE CONTAINER WITH GT500 SHROUD. INSTALL 20' WIDE SCOUR APRON, GT500 POLYPROPYLENE. PERFORM ONLY EXCAVATION NECESSARY TO CREATE THE ALIGNMENT FOR THE NEW GEOTUBE. THIS SHOULD INCLUDE A LEVEL, STRAIGHT, SHALLOW SWALE AS REQUIRED. REFER TO THESE DRAWINGS AND ATTACHED SPECIFICATIONS.
2. FURNISH AND INSTALL: STONE RIPRAP IN AREA SHOWN (50-250 LBS.) (NOTE: PETRO-FLEX MAT MAYBE SUBSTITUTED IN THE AREA COVERING THE DISCHARGE PIPE WITH ENGINEER APPROVAL.)
3. FURNISH AND INSTALL: 50LF PIPE AT 1% MIN. SLOPE. PROVIDE ALL MATERIALS NECESSARY TO TIE-IN TO THE EXISTING PIPE. DEMO EXISTING CONCRETE STRUCTURE AS REQUIRED. THE OUTFALL PIPE USED FOR THE EXTENSION WILL BE THE SAME SIZE AND TYPE AS EXISTING. PROVIDE ADEQUATE COMPACTION OF NEW BACKFILL BEFORE THE NEW OUTFALL PIPE IS INSTALLED. COVER WITH PETROFLEX MAT AS SHOWN.
4. CONSTRUCT REINFORCED CONCRETE PIPE COLLAR.
5. EXISTING TIMBER PILES TO BE REMOVED TO 4' BELOW GRADE (MINIMUM) AND DISPOSED OF.
6. AFTER THE GEOTUBE AND SCOUR APRON ARE IN PLACE AND FILLED, APPROXIMATELY 1,800 CU. YDS. OF SAND BACKFILL WILL BE PLACED FROM JUST BELOW THE BACKSIDE CURVE OF THE GEOTUBE AT ELEVATION +5.0' AND SLOPE UPWARD TO MATCH EXISTING GRADE AT ELEVATION +6.0'. DO NOT DISTURB THE EXISTING VEGETATION ANYMORE THAN NECESSARY. COMPACT TO 90%. FURNISH AND PLACE 2" TOPSOIL ON ALL AREAS WHICH WERE BACKFILLED AND FEATHER OUT TO TIE-IN TO ADJACENT EXISTING VEGETATED AREAS. FURNISH AND INSTALL GRASS SEEDS, MIRAFI FW-700 GEOTEXTILE FABRIC, HYDROMULCH WITH 70/30 WOOD/PAPER BLEND MULCH, BERMUDA, MILLET, MICROBES, FERTILIZER, TACKIFIER, AND CURLEX II EROSION CONTROL BLANKET. WATER AS NECESSARY TO START SEED GERMINATION.



TOPOGRAPHIC SURVEY'S PERFORMED BY:


Doyle & Wachtstetter, Inc.
 Surveying and Mapping GPS/GIS

OFFICE: 979.265.5022 131 COMMERCE STREET, CLUTE, TEXAS 77511 FAX: 979.265.9940


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PURPOSE:

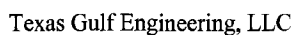
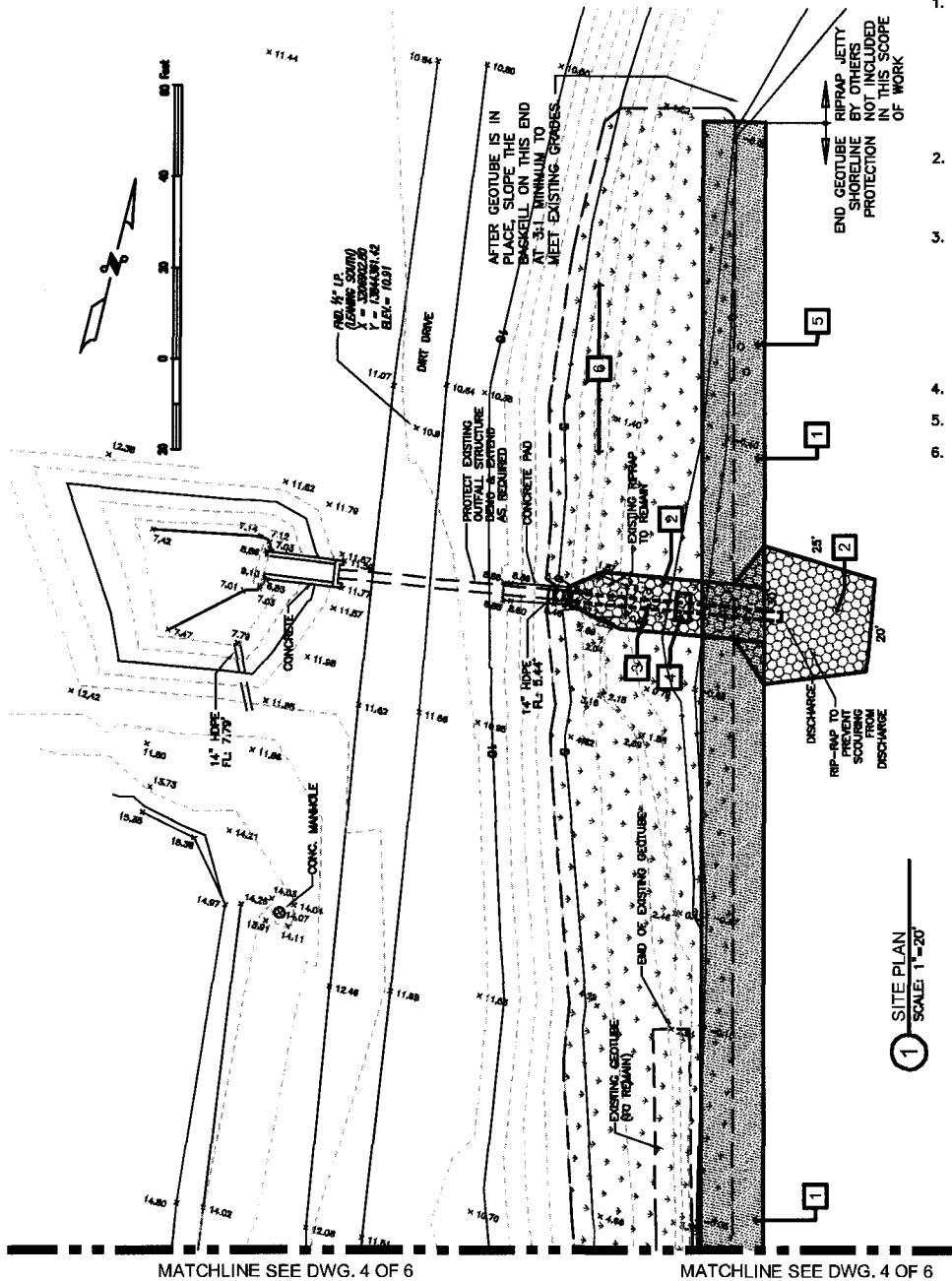
DEZAVALA FLEET SHORELINE REPAIRS
 AT CARPENTER'S BAYOU & BUFFALO BAYOU IN
 CHANNELVIEW, HARRIS COUNTY, TEXAS

DATE: SEPTEMBER 6, 2012 SHEET: 4 OF 6

SWG-2008-00941

#

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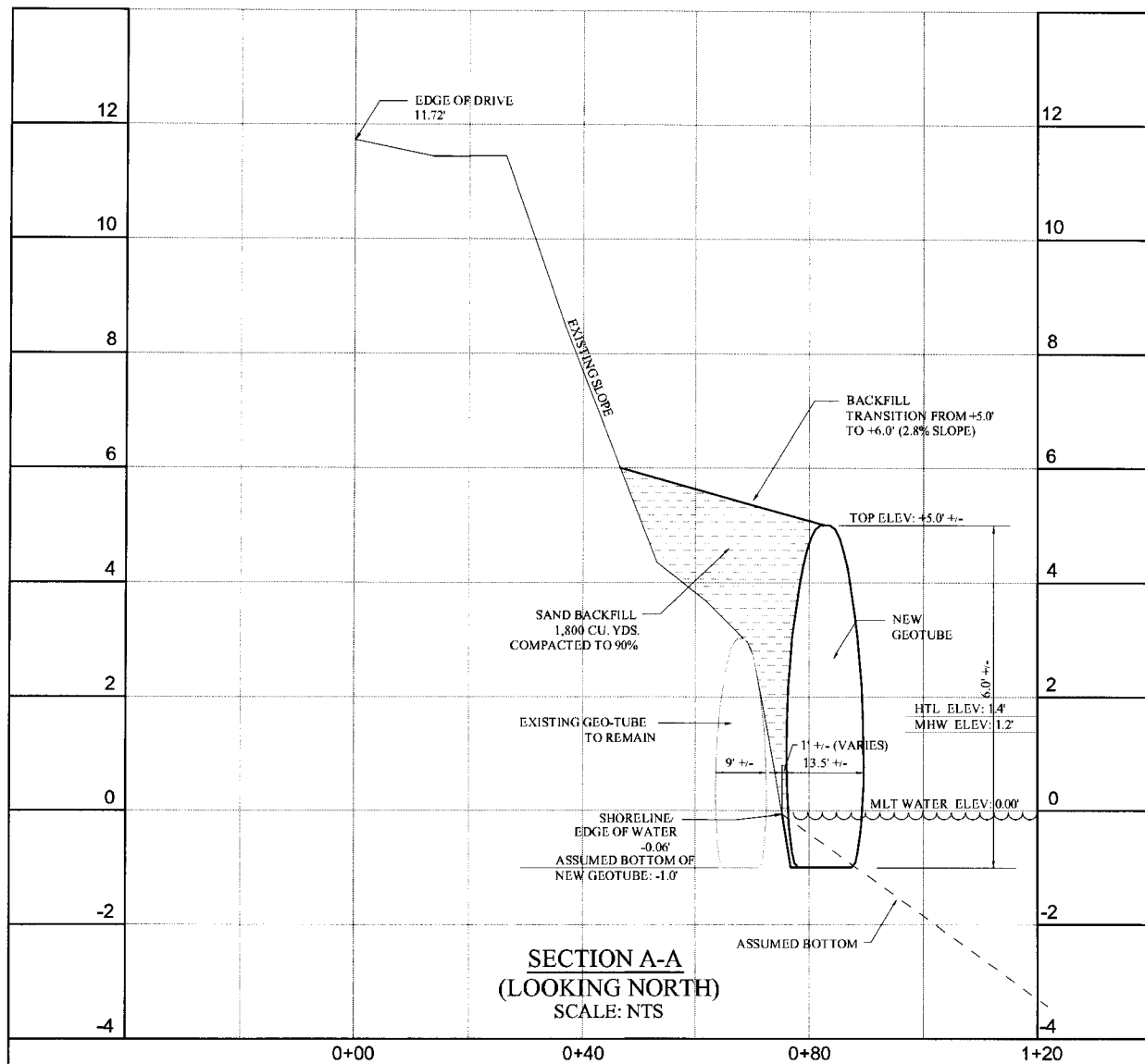
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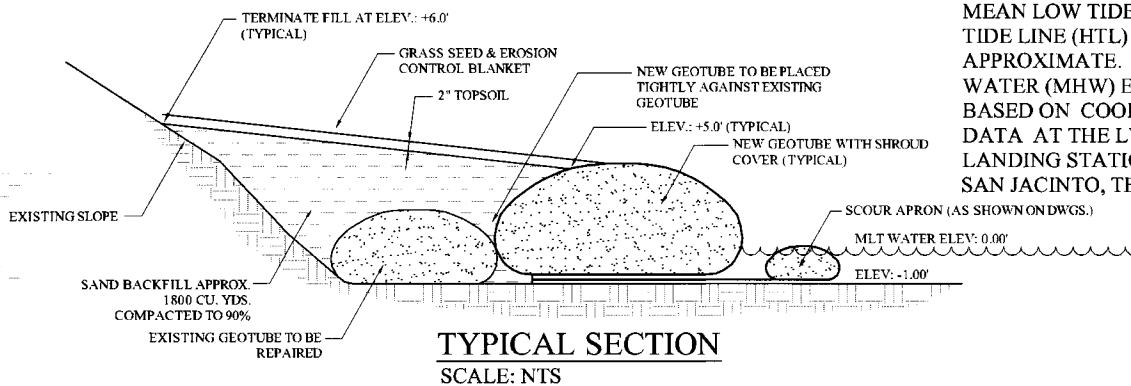
**DEZAVALA FLEET SHORELINE REPAIRS
AT CARPENTER'S BAYOU & BUFFALO BAYOU IN
CHANNELVIEW, HARRIS COUNTY, TEXAS**

DATE: SEPTEMBER 6, 2012 SHEET: 5 OF 6

SW6-2008-00941



NOTE: ELEVATIONS BASED ON MEAN LOW TIDE (MLT) DATA. HIGH TIDE LINE (HTL) ELEVATION IS APPROXIMATE. MEAN HIGH WATER (MHW) ELEVATION IS BASED ON COOPS/NGS ELEVATION DATA AT THE LYNCHBURG LANDING STATION ID 8770733 IN SAN JACINTO, TEXAS.



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PURPOSE:

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DATE: SEPTEMBER 6, 2012 SHEET: 6 OF 6

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